



THE TOWN OF CENTREVILLE 101 LAWYERS ROW CENTREVILLE, MD 21617  
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## MEMORANDUM

June 10, 2020

TO: Town Council of Centreville

FR: Kip Matthews, Director of Public Works

RE: Proposed Timeline for Implementation of North Brook Recommendations from MDE and McCrone

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Due to COVID-19 and Well 5 Water Treatment Plant (WTP) continuing to remain off line, staff is limited to what they are able to schedule and do at this time. The following outline is what has been done and a rough schedule of what recommended actions can be taken with the Council's approval.

### Recommendations already implemented to date:

1. Before January 20, 2020, Town hired a consultant (McCrone Engineering) to make recommendations on optimizing Water Treatment Plant (WTP) performance and address issues in the distribution system that may be causing the discolored water. The investigation needed to include water chemistry and hydraulics such as water hammer.
2. Filter media from the WTPs were sampled and sent to the filter manufacturer and analyzed. The Comet Drive WTP filter media was in good condition in regards to size, uniformity, and hardness. The filter media from the North Brook WTP showed significant stripping and rebedding the filter was suggested. Filter media for the North Brook WTP was ordered and delivered. These filters will be scheduled for the week after the Comet Drive WTP is back in service.
3. The raw well water was sampled from both wells and analyzed with the results used by McCrone to consult with Hungerford and Terry, the filter manufacturer.
4. McCrone has consulted with Hungerford and Terry for Standard Operating Procedures (SOP), design capacities, raw water and backwash flow rates and to determine the need for muriatic acid injected before the filters.
5. McCrone has evaluated the backwash loading rates and they are acceptable for the designed filters. To quantify this information and assist to refine the filter operation, Town staff will perform backwash draw down tests, with timed sampling, the week of June 15, 2020. It has been recommended by MDE and McCrone to install a continuous in line turbidity meter and chart recorder. When this is approved by Council, it will be ordered and installed promptly. *Please see Purchase Request #3 on the following supplemental document.*

6. Arsenic was tested at the WTPs and reported on the Monthly Operating Reports (MOR) three times a week. They are now tested every day and reported on the MORs.
7. The Point of Entry (POE) Arsenic testing used by Town staff is a color comparison method. MDE and McCrone both recommend using a more accurate method. When this purchase is approved by Council, it will be ordered and placed in service as soon as it arrives. *Please see Purchase Request #1 on the following supplemental document.*
8. An annual flushing of the distribution system in October or November has been in place for many years. A semiannual program has been started as of April 2020 and will be completed in North Brook once the Comet Drive WTP is back in service. This will include an uni-directional flushing program as recommended.
9. All three of the Town water towers were inspected on June 3<sup>rd</sup> and the reports will arrive in the next two weeks.

This document and a supplemental document *Purchase Request per MDE and McCrone Recommendations* will be forwarded to MDE and McCrone for discussion after Council has reviewed and authorized the purchases.

**North Brook Water Treatment Plant Performance Evaluation  
Purchase Request Per MDE & McCrone Recommendations  
as of May 27, 2020**

Per the Maryland Department of the Environment's (MDE) Performance Evaluation and McCrone Engineering Inc. recommendations, staff is requesting the following purchases/expenditures at this time.

**Request #1**

MDE Recommended Plan of Action. Page 3 "Operation"

"The equipment used to measure arsenic in-house is a color comparison method with a minimum reporting limit of 4ppb. This type of test can be subjective. Using a more accurate test to measure arsenic with a lower minimum reporting limit should be considered."

McCrone Summary and Prioritization of Recommended Actions.

"Supplemental Recommendation for Treatment Optimization" Page 11  
Section 2b

Purchase the "Quick Arsenic Scan Unit"

The in-house arsenic test used daily is a color comparison method which is currently visually compared between the sample and a chart. This scan unit reads the color and takes out any human error. This is the only bench top unit that will read as low as 5.0 ppb. Staff would require one for each Water Treatment Plant (WTP).

*Quick Scan Arsenic #481305 @ \$2000,00 each / one for each WTP total \$4,000.00*

This purchase would be coded to C24-6220 Small Tools and Equipment. This line item currently has \$1,670.81 left and would leave a deficit of \$2,329.19.

**Request #2**

MDE Recommended Plan of Action. Page 3 "Operation: First Bullet Point

"The MORs reflect arsenic monitoring at point of entry 2-3 times per month. While daily iron and chlorine samples are being taken at the plant, arsenic should also be monitored and recorded daily in light of the elevated arsenic results to identify and track patterns of any breakthrough that occurs. Regular distribution monitoring should also be performed and recorded."

McCrone Summary and Prioritization of Recommended Actions.

Recommended Action #1 Page 4 of 11 "Perform Additional Testing"  
Section 2 a, d

This step will require a one time, 8 samples at \$77.00 each.

Recommended Action #3 Page 6 of 11

Closely Monitor Finished Water

This step will require 4 samples June 2020 at \$77.00 each.

Supplemental Recommendation for Treatment Optimization. Page 11 of 11

Section 3

This step will require 5 samples per month at \$77.00 each.

*The total cost of these samples for June 2020 would be \$1,309.00.*

Lab fees are coded to C24-7440 Contract Services. Due to budget cuts over past years, and MDE's requirement to bring a consultant (McCrone) on board, this line item is currently over budget by \$17,147.00.

### **Request #3**

#### MDE Recommended Plan of Action. Page 3 "Design": Second Bullet Point

"Having a continuous inline turbidity or iron analyzer after the filters may wish to be considered for gathering data of when and how often iron breakthrough occurs. This can provide a better understanding of what is coming out of the plant and assist in identifying any patterns."

#### McCrone Summary and Prioritization of Recommended Actions.

Recommended Action #1 Page 10 of 11

Install Turbidity Meter and Chart Recorder at the WTP.

*The cost of this equipment is \$4,772.10.*

Labor will be time and materials by HIE, the Town's in-line metering equipment contractor. With the lag time of ordering parts and scheduling, these invoices will be billed in FY21.

### **Request #4**

#### MDE Recommended Plan of Action. Page 3 "Design": First Bullet Point

"The plant recycles its backwash water all at one time in a batch process that possibly overloads the filters at times with extremely high concentrations of "recycled" iron and arsenic. A variable frequency drive should be considered to lower the recycle flow and enter the plant at a steady state without a water hammer. An engineer should be consulted for this."

#### McCrone Summary and Prioritization of Recommended Actions.

Recommendation #4. Page 8 of 11

"Evaluate and Select a Permanent Solution to the Solids in the Recycled Backwash Water"

Permanent Option #2

Install Variable Frequency Drives (VFDs) on the backwash pumps in order to reduce the flow rate from the backwash recycle pumps to no more than 10% (50 GPM) of the filter inlet flow. Limiting to 10% of the raw water flow is a current best practice.

*Cost of equipment and installation \$4,559.13.*

This purchase would be invoiced in FY21.

### **Request #5**

Arrange a workshop meeting in the near future to include MDE staff, McCrone staff, and the public, via Facebook/Zoom or live for questions and comments.